ISSN XXXX XXXX © 2019 IJESC

Research Article Volume 9 Issue No.3

Automatic Cadle Feed Machine

N. Sedhuraman[1], G. Prabu[2], M.Vishnubagavath[3]
Assistant Professor[1], Student[2, 3]
Department of Mechanical Engineering
IFET College of Engineering, Villupuram, India

Abstract:
Today it is a time consuming task as the process of cutting the bar to required length happens manually. This is not only time consuming but also erroneous marking may result in rejection of the job. Most of the industries use band saws or hacksaws as current equipment for the purpose of cutting operations. This process is not only slow but is also error some. The project deals with the concept of "automatic cattle feed machine". In this project a concept is proposed to feed multiple bars at once and cut it accordingly to length input given by input panel. The various systems which permits automated feeding systems. At present rail-guided feed wagons are the best established in practice, but conveyor belts and self-propelled feeders are also used. The number of feed components used different as much as the time requirement. The working time measurements of automatic feeding systems (AFS), that by using an AFS it is possible to use time and achieve greater flexibility. A significant reduction in working time comparison with conventional feed mixture wagon however can only be expected in the case of sizeable herds. The working time requirement of automated feeding systems depends essentially on the removal technique, distance from the feed store and type of silo.

Keywords: Automated feeding system, rail-guided feed wagons, feed store

I. INTRODUCTION

Different cattle feeding production systems have separate advantages and disadvantages. Most cattle in the US have a diet that is composed of at least some forage (grass, legumes, or silage). In fact, most beef cattle are raised on pasture from birth in the spring until autumn (7 to 9 months). Then for pasture-fed animals, grass is the forage that composes all or at least the great majority of their diet. Cattle fattened in feedlots are fed small amounts of hay supplemented with grain, soy and other ingredients in order to increase the energy density of the diet. The debate is whether cattle should be raised on diets primarily composed of pasture (grass) or a concentrated diet of grain, soy, corn and other supplements. The issue is often complicated by the political interests and confusion between labels such as "free range", "organic", or "natural". Cattle raised on a primarily forage diet are termed grass-fed or pasture-raised; for example meat or milk may be called grass-fed beef or pasture-raised dairy. However, the term "pasture-raised" can lead to confusion with the term "free range", which does not describe exactly what the animals eat.

1.1 TYPES OF CATTLE FEEDING

1.1.1 Grazing

Animals grazing in rangelands, pastures, and grasslands and with little or no integration of crops involved. About 60% of the world's pasture land is covered by grazing systems. According to Food and Agriculture Organization statistics, ″Grazing systems supply about 9 percent of the world's production of beef and about 30 percent of the world's production of sheep and goat meat. For an estimated 100 million people in arid areas, and probably a similar number in other zones, grazing livestock is the only possible source of livelihood.

1.1.2 Integrated livestock-crop farming

Animal productions are integrated with crop productions. Moreover, livestock such as cattle are primarily fed on pastures, crop residues, and fallows. An integrated farming system aims to achieve acceptable profits and high and sustained production levels. Mixed farming systems are the largest category of livestock system in the world.

1.1.3 Industrial production

Animals are fed in landless environments such as in stalls, pens, and feedlots in very high stocking densities. Intensive or industrial factory farming of animals originated in the United States in the late 1930s. This has resulted in an integrated model of production, where large corporations control most aspects of animal husbandry in the food industry, processing of animals into food products, and sales to the consumer market. Industrial productions systems differ from grazing systems and integrated livestock-crop farming systems by their inclusions of various substances such as veterinary drugs, growth hormones, feed additives, or nutraceuticals to improve livestock production effectiveness.

1.2 GRASS-FED

Grass and other forage compose most or the majority of a grass-fed diet. There is debate as to whether cattle should be raised on diets primarily composed of pasture (grass) or a concentrated diet of grain, soy, and other supplements. The issue is often complicated by the political interests and confusion between labels such as "free range," "organic", and "natural." Cattle raised on a primarily forage diet are termed grass-fed or pasture-raised; meat or milk may be called grass-fed beef or pasture-raised dairy. However, the term "pasture-raised" can lead to confusion with the term "free range" which does not describe exactly what the animals eat. Thus, cattle can be labelled free

range but not necessarily grass-fed. Another term is "grass-finished", for which cattle are generally held to a higher standard in terms of tenderness and marbling. However, the label generally has no strict regulations. The Agricultural Marketing Service of the United States Department of Agriculture previously had a standard for "Grass Fed" meat, but withdrew the standard in 2016.

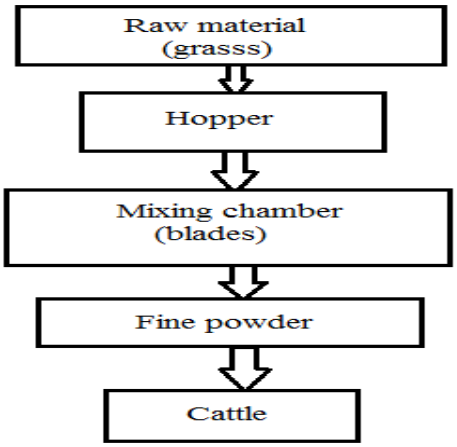
1.3 CORN-FED

Cattle called "corn-fed", "grain-fed", or "corn-finished" are typically fattened on maize, soy, and other types of feed for several months before slaughter. As a high-starch, high-energy food, corn decreases the time to fatten cattle and increases carcass yield. Some corn-fed cattle are fattened in concentrated animal feeding operations known as feed lots. In the United States, most grass-fed cattle are raised for beef production. Dairy cattle may be supplemented with grain to increase the efficiency of production and reduce the area needed to support the energy requirements of the herd. A growing number of health and environmental proponents in the United States such as the Union of Concerned Scientists advocate raising cattle on pasture and other forage. Complete adoption of farming practices like grass-fed beef production systems would increase the amount of forage land needed to raise cattle but reduce cropland used to feed them

II PROBLEM IDENTIFIED.

Daily cow is one kind of ruminant animal, whose rumen plays an important role in the digestive process. There are many kinds of microbes in the lumen. Actually it is these microbes that play a crucial part for the digestion. These microbes are sensitive to the pH value in the rumen environment. To keep The studies show that the pH value in the rumen is relative with the amount of the concentrated feed. So we need control the amount of the concentrated feed that each daily cow got. This process involves the feeding based on a single daily cow. To realize this process, we need to identify the daily c o w , a n d feed that it needs. This process could be realized by the application of RFID system.Ni (2009) designed an intelligent moving precise feeding machine for single dairy cow. An RFID system was equipped on this machine, which can move and identify the single dairy cow, and then give it the amount of the concentrated feed needed.

II METHODOLOGY



III. WORKING

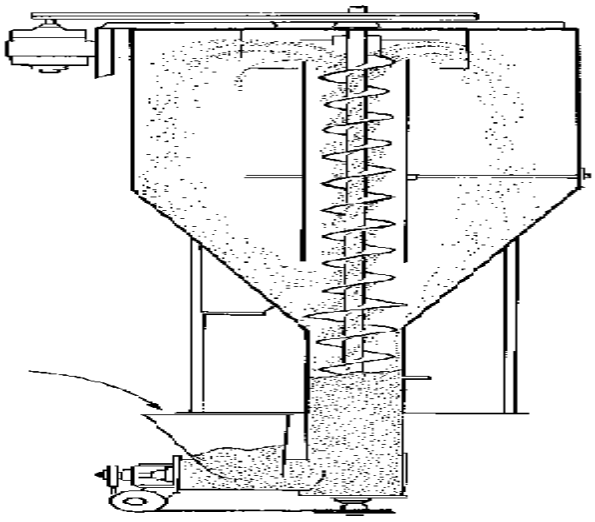
3.1 AUTOMATIC CATTLE PALLET FEED PLANT

Automatic Cattle Pallet Feed Plant Raw Materials Grinding a special type of deluxe type grinding mill is used for grinding of all raw materials. Machine is designed specially and made heavy-duty for better quality of grinding for best quality of final product. Raw Material mixing a special type of horizontal type mixer machine is used for mixing of all raw materials with binding materials. Machine is designed specially and made heavy-duty for better quality of mixing for best quality of final product. Palletizing is done through a specially designed very heavy-duty pellet mill. Pellet mill is produced pellets from the powder type raw materials. Pellet mill is suitable to make different size of pellets. Pellet mill is designed specially and made very heavy-duty for better quality of palletizing for best quality of final animal feed.

3.2 SEMI AUTOMATIC CATTLE PALLET FEED PLANT

Semi-automatic Cattle Pellet Feed Plant is engineered for batching, weighing and grinding varied types of ingredients. This is developed to ensure proper and consistent mixing of the ingredients uniformly. In addition, pelletizing is also carried out after even and consistent mixing. This machine is available with sufficient storage bins that are properly attached as per the capacity of the plant. These bins are ideal to store ingredients. Moreover, this plant comes with a high-tech PLC controlled function for accurate as well as continuous preparation of batches with no manual interference. The hammer mill is attached to ease admixture into the feed. Features of Semi-Automatic Cattle Pellet Feed Plant: Hammering is done to reduce the processing of material into fine particles Welded structures designed using high-grade steel with dynamically balanced rotor Lined design with durable and grooved wearing plates Proper mixing with homogenization is ensured owing to multiple spiral elements

IV. DEIGN DIGRAM



V. COMPONENTS

1. Hopper
2. Feed Roller
3. Conveyor Belt
4. Motor

5. Pulley
6. Mixing blades
7. Shaft
8. Sheet metal

VI. CONCLUSION

An automatic feeding machine for aquaculture industry in Malaysia was developed in this study. It is a simple and yet reliable, feasible, and quite efficient feeding machine. The automatic feeder was constructed using stainless steel grade 304 to avoid contamination. It is controlled by a digital timer which allows the owner to adjust the cycle time and dispensing time as and when required. More importantly, the timing can be programmed to ensure that the feeding schedule is consistent. The feeding mechanism is easily and widely adjustable. Among other, the height of the feeder is adjustable to accommodate different heights of tanks used in the industry. Furthermore, the hopper size can be changed to accommodate different capacity of feed. Moreover, the opening angle can also be adjusted to suit the different sizes of tanks or ponds. The feeder is air operated and it is connected to the controller using air pipe. This way, the control panel can be allocated in a safe place near the power supply and the feeder can be located at any place near the tank.

VII. REFERENCE

[1]. Rahul R. Gurpude, Study of mechanism used for automating the mechanical system, International Journal of Engineering Trends and Technology (IJETT) – Volume 26 Number 2- August 2015, ISSN: 2231-5381.

[2]. A.O. Hannure, Literature Review on Automatic Seed Feeder, International Journal of Engineering Trends and Technology (IJETT) – Volume 36 Number 7- June 2016

[3]. Henry Verheke, Pouch vending machine, United States Patent 3,613,947, Nov 19 ,1971

[4]. John M. Browne, Vertical vacuum corrugation feeder, United States Patent 5,249,787, Aug. 25, 1987.

[5]. Edward M. Iftovits, Modular document feeder device, United States Patent 4,688,782, Oct. 5, 1993.

[6]. FatehaliDharssi, System and method for including packets with goods during automated packaging, United States Patent US 6,993,887 B2, Feb. 7, 2006.

[7]. Kamalanathan.P Automatic paper vending machine, International Journal of Science, Engineering and Technology Research (IJSETR), Volume 4, Issue 4, April 2015.

[8].R.S. Khurmi and J.K Gupta, 2004, Theory of Machine,Eurasia Publishing House (PVT) LTD, Ramnagar, NewDelhi-110055.

[9]. ImanHajizadeh and Chi-Guhn Lee, April 1992―Alternative Configuration for Cutting Machine in a Tube Cutting Mill‖ Indian Journal of Research ISSN-2250-1991 ,Volume No. 6 ,Issue7. 38